



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,057	09/26/2003	Zbigniew M. Dziong	Dziong 9-1	1232

46850 7590 06/25/2007
MENDELSON & ASSOCIATES, P.C.
1500 JOHN F. KENNEDY BLVD., SUITE 405
PHILADELPHIA, PA 19102

EXAMINER	
CHAN, SAI MING	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
06/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/673,057	Applicant(s) DZIONG ET AL.	
	Examiner Sai-Ming Chan	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) ✓ | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) ✓ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/26/2003, 11/21/2005, 7/31/2006, and 5/16/2007.

DETAILED ACTION

Priority

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on September 26, 2003, November 21, 2005, July 31, 2006 and May 16, 2007 have been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by
Cao (U.S. Patent Publication # 20030095500).

Consider **claim 1, Cao** clearly disclose and show a method for determining a restoration path (paragraph 6, lines 1-6) corresponding to a primary path (paragraph 6, lines 1-6) for a new service in a mesh network (fig. 1, paragraph 16) having a plurality of nodes (fig. 1, paragraph 21, lines 1-3) interconnected by a plurality of links (fig. 1, paragraph 21, lines 1-3), the method comprising:

generating a path cost for each of a plurality of candidate restoration paths (paragraphs 44-47(minimal cost path)) associated with the new service; and

selecting the restoration path for the new service based on the path cost for each candidate restoration path (fig. 3 (114 & 116), paragraph 54 (reserve the optimal backup path that has the minimal cost)), wherein generating the path cost for a candidate restoration path comprises:

determining, for each link L_i of one or more links in the candidate restoration path, a set B- L_i -set of links (paragraphs 21-26 (Ω_i) (associated SRLG set)) protected by link L_i (paragraph 27 (link i));

determining, for each link L_i , a set I- L_i -set of links (paragraphs 21-26 (Ψ_i) (union of SRLG set for backup paths)) in the set B- L_i -set that are also in the primary path;

Art Unit: 2609

calculating, for each link L_i , a link cost $Cost_L_i$ based on the set B-Li-set and the set I-Li-set (paragraphs 40, 44-45 (link cost for each link); and

calculating the path cost based on a sum of the one or more link costs $Cost_L_i$ (paragraphs 46-47 (minimal cost path)).

Consider **claim 2**, and **as applied to claim 1 above**, Cao clearly disclose and show an invention, wherein the set I-Li-set is determined from an intersection of the set B-Li-set and a set P-set of links in the primary path (paragraphs 44-45 ($\pi \cap \Psi_i == \Phi$, where π is the union of SRLG set for each link).

Consider **claim 3**, and **as applied to claim 1 above**, Cao clearly discloses and shows an invention, wherein, for link L_i , the link cost $Cost_L_i$ is a function of whether or not the set B-Li-set is empty (paragraphs 44-45 (link cost is calculated based on).

Consider **claim 4**, and **as applied to claim 3 above**, Cao clearly discloses and shows an invention, wherein:

if the set B-Li-set is empty (paragraphs 44-45 (link cost is calculated based on $\pi \cap \Psi_i$ not equal to Φ), then the link cost $Cost_L_i$ is based on bandwidth of the new service (paragraph 45, lines 8 -10 of the logic (else case of $\pi \cap \Psi_i == \Phi$)); and

Art Unit: 2609

if the set B-Li-set is not empty (paragraphs 44-45 (link cost is calculated based on $\pi \cap \Psi_i = \Phi$), then the link cost Cost_Li is a function of whether or not the set I-Li-set is empty (paragraph 45, lines 2-7 of the logic).

Consider **claim 5**, and **as applied to claim 4 above**, Cao clearly disclose and show an invention, wherein:

if the set I-Li-set is empty (paragraph 45, goto ELSE case of line 2 of the logic), then the link cost Cost_Li is based on a difference between the bandwidth of the new service and bandwidth currently reserved on the link Li (paragraph 45, lines 4-5 of the logic); and

if the set I-Li-set is not empty, then the link cost Cost_Li is based on a difference (paragraph 45, lines 2 and 6 of the logic ($TC_{sub.i} - AC_{sub.i} = BC_{sub.i}$)) between (a) a sum of the bandwidth of the new service and maximum service bandwidth protected by link Li for all links in the set I-Li-set (paragraph 41, lines 1-4 ($AC_{sub.i} = AC_{sub.i} + \beta$)) and (b) the bandwidth currently reserved on the link Li (paragraph 22 (TC)).

Consider **claim 6**, and **as applied to claim 4 above**, Cao clearly disclose and show an invention, wherein the path cost is set to a relatively high level if there is not enough capacity on the link Li to protect the new service (paragraphs 44-45 (lines 7 and

Art Unit: 2609

12 of logic: cost1 = α) requested bandwidth of new service is greater than what is available).

Consider **claim 7**, and as applied to **claim 1** above, Cao clearly disclose and show an invention, wherein the method is implemented for each of a plurality of candidate primary paths to generate a path cost associated with the candidate primary path (paragraphs 44-47) and further comprising selecting one of the candidate primary paths for the new service based on minimum path cost (fig. 3 (114 & 116), paragraph 54 (reserve the optimal backup path that has the minimal cost)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating

obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cao (U.S. Patent Publication # 20030095500)** in view of **Battou (U.S. Patent Publication # 20020174207)**.

Consider **claim 8**, and **as applied to claim 1 above**, **Cao** clearly disclose and show a restoration path system, wherein the network is an open shortest path first (OSPF) network and restoration bandwidth information associated with each link in the

candidate restoration path is transmitted between nodes using a data structure defined by OSPF opaque link-state advertisement option (paragraph 27 (OSPF's Opaque LSA)).

However, Cao does not specifically display OSPF-TE. Furthermore, Battou clearly disclose an OSPF with traffic engineering extensions (paragraph 253 (support traffic engineering)).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a restoration path system as taught by Cao, and demonstrate the usage of OSPF-TE, as taught by Battou, in order to maintain the network survivability.

Consider **claim 9**, **Cao** clearly disclose and show a mesh network having a plurality of nodes (fig. 1, paragraph 21, lines 1-3) interconnected by a plurality of links (fig. 1, paragraph 21, lines 1-3), and adapted to determine a restoration path corresponding to a primary path for a new service in the mesh network (fig. 1, paragraph 16), wherein:

generate a path cost for each of a plurality of candidate restoration paths (paragraphs 44-47(minimal cost path)) associated with the new service; and

select the restoration path for the new service based on the path cost for each candidate restoration path(fig. 3 (114 & 116), paragraph 54 (reserve the optimal backup

Art Unit: 2609

path that has the minimal cost)), wherein generating the path cost for a candidate restoration path comprises:

determining, for each link L_i of one or more links in the candidate restoration path, a set B-Li-set of links (paragraphs 21-26 (Ω_i) (associated SRLG set)) protected by link L_i ;

determining, for each link L_i , a set I-Li-set of links (paragraphs 21-26 (Ψ_i) (union of SRLG set for backup paths)) in the set B-Li-set that are also in the primary path;

calculating, for each link L_i , a link cost $Cost_L_i$ based on the set B-Li-set and the set I-Li-set (paragraphs 40, 44-45 (link cost for each link) ; and

calculating the path cost based on a sum of the one or more link costs $Cost_L_i$ (paragraphs 46-47 (minimal cost path)).

However, Cao does not specifically display network manager for the network. In the same field of endeavor, Battou clearly disclose a network with managers running different portion of the network (abstract).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a restoration path system as taught by Cao, and demonstrate the usage of OSPF-TE, as taught by Battou, in order to maintain the network survivability.

Consider **claims 10 and 11**, and **as applied to claim 9 above**, Cao clearly disclose a mesh network restoration system as described. However, Cao does not specifically disclose network manager in the network.

In addition, Battou clearly disclose is a network managers distributed over the network (abstract (plurality of managers)) and the network manager is located at a single node of the network (paragraph 11).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a restoration path system as taught by Cao, and demonstrate the usage of OSPF-TE, as taught by Battou, in order to maintain the network survivability.

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Sai-Ming Chan
S.C./sc

June 12, 2007



Seema S. Rao
SEEMA S. RAO 6/19/07
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2609

Application/Control Number: 10/673,057

Page 12

Art Unit: 2609